CLAIMS

1. Conductor crossover for a semiconductor detector, in particular for a drift detector for X-ray spectroscopy, having

- at least two doped semiconductor electrodes (2) situated in a semiconductor substrate (1),
- at least one connecting conductor (M) guided over the semiconductor electrodes (2), and
- a first insulation layer (Ox),

characterized in that

between the connecting conductor (M) and the first insulation layer (Ox) an intermediate electrode (L, L2) is situated which covers the region of the semiconductor substrate (1) between the semiconductor electrodes (2) and which is electrically insulated from the connecting conductor (M) by at least one additional insulation layer (I).

2. Conductor crossover according to Claim 1, **characterized in that** the intermediate electrode (L) is electrically connected to one of the semiconductor electrodes (2) and has the same electrical potential as said semiconductor electrode.

3. Conductor crossover according to Claim 2, in which the connection between the intermediate electrode (L) and the semiconductor electrode (2) is formed by a polysilicon-silicon crossover.

4. Conductor crossover according to Claim 1, **characterized in that** the intermediate electrode (L, L2) is connected to an external power source in order to set its electrical potential.

5. Conductor crossover according to at least one of the preceding claims, **characterized in that** multiple levels containing a plurality of insulated

intermediate electrodes (L, L2) are situated, one above the other, between the connecting conductor (M) and the semiconductor substrate (1)

6. Conductor crossover according to at least one of the preceding claims, **characterized in that** for contacting the semiconductor electrodes (2) and/or an amplification element (T) at least one additional connecting conductor is provided, which is guided over adjoining semiconductor electrodes (2).

7. Conductor crossover according to at least one of the preceding claims, **characterized in that** the semiconductor electrodes (2) are p-doped, whereas the semiconductor substrate (1) and/or the readout electrode (A) are n-doped.

8. Conductor crossover according to at least one of the claims 1-6, **characterized in that** the semiconductor electrodes (2) are n-doped, whereas the semiconductor substrate (1) is p-doped.

9. Conductor crossover according to at least one of the preceding claims, **characterized in that** the semiconductor substrate (1), the semiconductor electrodes (2), and/or the substrate electrode (S) are made essentially from silicon, in particular polysilicon, or germanium or gallium-arsenide.

10. Conductor crossover according to at least one of the preceding claims, **characterized in that** the connecting conductor (M) is guided over semiconductor electrodes (2) which have an annular topology.

11. Conductor crossover according to Claim 10, **characterized in that** the connecting conductor (M) is guided over multiple semiconductor electrodes (2) which mutually surround one another.

12. Conductor crossover according to at least one of the preceding claims, **characterized in that** the at least one connecting conductor is guided over multiple adjoining drift detectors.

13. Drift detector for X-ray spectroscopy which is provided with at least one conductor crossover according to at least one of the preceding claims.

14. Detector assembly for X-ray spectroscopy, comprising multiple drift detectors and having at least one conductor crossover according to at least one of the preceding claims 1 through 12 which is guided over multiple drift detectors.

[see source for Figures 1-4]